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**TRANSMITTAL
FORM**

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Application Number

10/693,180

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First Named Inventor

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Art Unit

2182

Examiner Name

Unassigned

Attorney Docket Number

16869K-098600US

ENCLOSURES (Check all that apply)

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input checked="" type="checkbox"/> Renewed Petition to Make Special <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): Return Postcard
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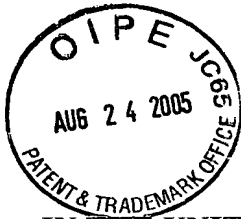
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Townsend and Townsend and Crew LLP		
Signature			
Printed name	Chun-Pok Leung		
Date	August 22, 2005	Reg. No.	41,405

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

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PATENT
Attorney Docket No.: 16869K-098600US
Client Ref. No.: 636/SM/mt

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

SHUJI SUGIMOTO

Application No.: 10/693,180

Filed: October 24, 2003

For: STORAGE DEVICE
CONTROLLING APPARATUS
AND A CIRCUIT BOARD FOR
THE SAME

Customer No.: 20350

Examiner: Unassigned

Technology Center/Art Unit: 2182

Confirmation No.: 2603

**RENEWED PETITION TO MAKE
SPECIAL FOR NEW APPLICATION
UNDER M.P.E.P. § 708.02, VIII & 37
C.F.R. § 1.102(d)**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Decision dated June 23, 2005 dismissing the original petition to make special, Applicants respectfully submit a renewed petition to make special the above-identified application under MPEP § 708.02, VIII & 37 C.F.R. § 1.102(d). The application has not received any examination by an Examiner.

(a) The Commissioner has previously been authorized to charge the petition fee of \$130 under 37 C.F.R. § 1.17(i) and any other fees associated with this paper to Deposit Account 20-1430.

(b) All the claims are believed to be directed to a single invention. If the Office determines that all the claims presented are not obviously directed to a single invention, then Applicants will make an election without traverse as a prerequisite to the grant of special status.

(c) Pre-examination searches were made of U.S. issued patents, including a classification search, a key word search, and an online database search. The classification search was conducted on or around May 25, 2004 covering Classes 361 (subclasses 679, 685, 724, 748, 752, and 807) and 711 (subclass 114), by a professional search firm, Lacasse & Associates, LLC. The key word search was performed on the USPTO full-text database including published U.S. patent applications. The online database search was conducted using Delphion, Espacenet, and Google. The inventor further provided two references considered most closely related to the subject matter of the present application (see references #4 and #5 below), which were cited in the Information Disclosure Statement filed with the application on October 24, 2003.

(d) The following references, copies of which were previously submitted, are deemed most closely related to the subject matter encompassed by the claims:

- (1) U.S. Patent No. 6,510,050 B1;
- (2) U.S. Patent Publication No. 2001/0042167 A1;
- (3) U.S. Patent Publication No. 2003/0204671 A1;
- (4) U.S. Patent Publication No. 2002/0152339 A1; and
- (5) Japanese Patent Publication No. JP 2002-351703.

(e) Set forth below is a detailed discussion of references which points out with particularity how the claimed subject matter is distinguishable over the references.

A. Claimed Embodiments of the Present Invention

The claimed embodiments relate to a storage device controlling apparatus. In an exemplary embodiment as shown in Fig. 7, the apparatus comprises a circuit board 118 having an I/O processor 119, an inner connector 116, a file access processing section 111a, and an electric power connector 107.

Independent claim 1 recites a storage device controlling apparatus configured to be coupled to a storage device storing data and coupled to an information processing apparatus via a network. The apparatus is accommodated in a chassis, and comprises a circuit board accommodated in the chassis. The circuit board includes an I/O processor formed thereon, the I/O processor being configured to output to the storage device I/O

requests corresponding to requests to input and output data from the information processing apparatus; an inner connector provided at an end to be located on an inner side of the chassis, at least the I/O processor and a power supply unit being connected through the inner connector; a file access processing section formed thereon, the file access processing section configured to accept the requests to input and output data on a file basis; and an electric power connector provided at an end to be located on an outer side of the chassis, electric power being supplied to the file access processing section through the electric power connector.

Independent claim 11 recites a circuit board for a storage device controlling apparatus coupled to a storage device storing data and coupled to an information processing apparatus via a network. The apparatus and the circuit board are accommodated in a chassis. The circuit board comprises an I/O processor formed thereon, the I/O processor being configured to output to the storage device I/O requests corresponding to requests to input and output data from the information processing apparatus; an inner connector provided at an end to be located on an inner side of the chassis, at least the I/O processor and a power supply unit being connected through the inner connector; a file access processing section formed thereon, the file access processing section configured to accept the requests to input and output data on a file basis; and an electric power connector provided at an end to be located on an outer side of the chassis, electric power being supplied to the file access processing section through the electric power connector.

One benefit that may be derived is that the storage device controlling apparatus can realize high-density mounting and low cost, put fewer burdens on users when expanding a system, and ensure the stable operations.

B. Discussion of the References

1. U.S. Patent No. 6,510,050 B1

This reference discloses a high density packaging for multi-disk systems. A low profile substrate for packaging a computer system may include one or more sections of the substrate configured to hold a two-dimensional array of disk drives. The computer system 200 packaged within the substrate may be a single field replaceable unit. Circuitry for managing array drives is mounted onto the substrate and includes one or more processors

206, drive controllers 204, and drive interconnect components. The unit 200 can perform file services. The substrate 700 can also include power supplies that covert from the 48 volt signal provided on the edge connector 904. See column 5, lines 15-25; column 6, lines 46-49; column 6, line 65 to column 7, line 3; column 7, lines 61-63; column 9, lines 25-28; column 10, lines 62-64; column 11, lines 62-67; and column 12, lines 1-3.

The reference is directed to high density packaging for multi-disk systems in which a substrate includes one or more sections for holding a two-dimensional array of disk drives and a section for holding circuitry for accessing the array of disk drives. The circuitry disclosed includes processors, drive controllers, and drive interconnect components. The circuitry does not, however, include the arrangement of I/O processor, power supply, and file access processing section of the present invention. More specifically, the reference fails to teach a circuit board on which at least an I/O processor and a power supply unit are connected through an inner connector, a file access processing section is configured to accept requests to input and output data on a file basis, and electric power is supplied to the file access processing section through an electric power connector, as recited in independent claims 1 and 11.

2. U.S. Patent Publication No. 2001/0042167 A1

This reference relates to a method of storing data that includes a function board 10 that sends out stream data and controls writing to and reading data of a file from disk drive units D1-Dn. The function board 10 includes a disk controller 12 and an I/O controller 14. The disk drive units D1-Dn are connected to the function board 10 through an SCSI interface. See [0026]-[0028].

The reference discloses a striping method for dividing and storing data in a plurality of disk drive units, in which a function board is used to send out stream data and control writing and reading data on the disk drive units. The function board includes a processor, a disk controller, a memory, and an I/O controller. The function board, however, does not include the arrangement of I/O processor, power supply, and file access processing section of the present invention. More specifically, the reference fails to teach a circuit board on which at least an I/O processor and a power supply unit are connected through an inner connector, a file access processing section is configured to accept requests to input and output

data on a file basis, and electric power is supplied to the file access processing section through an electric power connector, as recited in independent claims 1 and 11.

3. U.S. Patent Publication No. 2003/0204671 A1

This reference discloses a storage system wherein the DKS cabinet 180 is used to store the network channel and fibre channel adapter boards 1300. The network channel adapter 1100 is an interface controller connected via the file I/O interface to NAS clients 400. The fibre channel adapter 1110 is an interface controller connected via the block I/O interface to SAN clients 500. See [0038], [0041], and [0047].

The reference relates to a storage system having NAS and SAN functions and providing a plurality of interface slots in which a plurality of interface controllers, a block I/O interface controller with SAN functions, and a file I/O interface controller with NAS functions can be installed. It does not, however, disclose a circuit board having the arrangement of I/O processor, power supply, and file access processing section of the present invention. More specifically, the reference fails to teach a circuit board on which at least an I/O processor and a power supply unit are connected through an inner connector, a file access processing section is configured to accept requests to input and output data on a file basis, and electric power is supplied to the file access processing section through an electric power connector, as recited in independent claims 1 and 11.

4. U.S. Patent Publication No. 2002/0152339 A1

This reference discloses a direct access storage system with combined block interface and file interface access. A storage system 10 includes a storage controller 14 and storage media 20 for reading data from or writing data to the storage media in response to SCSI, NFS, CIFS, or HTTP type of read/write requests. The storage controller includes an SCSI interface adaptor 26, an NFS interface adaptor 28, a CIFS interface adaptor 30, and a HTTP interface adaptor 32 for receiving the read/write requests and effecting the reading of data from or the writing of data to the storage media. See [0019]-[0021].

The reference provides various adaptors for handling and processing read/write requests. It does not, however, disclose a circuit board having the arrangement of I/O processor, power supply, and file access processing section of the present invention. More specifically, the reference fails to teach a circuit board on which at least an I/O

processor and a power supply unit are connected through an inner connector, a file access processing section is configured to accept requests to input and output data on a file basis, and electric power is supplied to the file access processing section through an electric power connector, as recited in independent claims 1 and 11.

5. Japanese Patent Publication No. JP 2002-351703

This reference relates to a storage device that is easy to manage by effectively utilizing a drive capacity in the coexisting environment of the storage device of block form data and that of file form data. A block data input/output processing part 10-a converts block data and an address from a fiber channel port 50 to a data format inside of the storage device 1. A file data input/output processing part 10-b converts file data and an address from an Ethernet to the data format of the file system 20. The file system 20 indexes the address of a logical volume 35-b from the address of the system 20 and converts the file data into block data. A logical volume management part 30 indexes the address of a logical volume 35-a for writing the block data from the address outputted by a processing part 10-a, converts this address or the address from the file system 20 to a physical address and writes/reads data to a drive.

As discussed in the present application at page 2, line 4 to page 3, line 14, the reference is directed to a NAS in which the file level access from the information processing apparatuses is allowed because the storage system is coupled to an apparatus having a file system function and, more particularly, to a RAID. However, a conventional NAS has been achieved by coupling information processing apparatuses having TCP/IP communication and file system functions to a storage system without TCP/IP communication and file system functions. Therefore, an installation space has been required for the information processing apparatus to be coupled. Accordingly, a floor area occupied by the NAS has been increased due to such an installation space. Therefore there has been a possibility that a data storage capacity per the installation area of the NAS may be relatively reduced. Moreover, in the conventional NAS, the information processing apparatus and the storage system are coupled through the SAN in many cases due to the necessity for high-speed communication, and thus communication controlling equipment or communication control function for the SAN has been required. To increase the data storage capacity per the installation area of the NAS and reduce complication of the equipment and functions related to the SAN, it is assumed to add

means of implementing the TCP/IP and the file system functions onto a circuit board having an interface function with the conventional information processing apparatus in the conventional NAS. In this case, this circuit board must be a circuit board which includes a new mode of being connected to the information processing apparatuses, the storage systems, and the like. Therefore, a chassis having accommodated the conventional circuit board must be replaced with a chassis which is suitable for the aforementioned new connection mode, thus increasing costs for the NAS. In addition, renewing both the circuit board and the chassis is a large burden on users.

The reference does not disclose a circuit board having the arrangement of I/O processor, power supply, and file access processing section of the present invention. More specifically, the reference fails to teach a circuit board on which at least an I/O processor and a power supply unit are connected through an inner connector, a file access processing section is configured to accept requests to input and output data on a file basis, and electric power is supplied to the file access processing section through an electric power connector, as recited in independent claims 1 and 11.

(f) In view of this petition, the Examiner is respectfully requested to issue a first Office Action at an early date.

Respectfully submitted,



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